

IN THE CLAIMS:

Please amend Claim 29 as follows.

Please add new Claims 32-36 as follows.

1.-28. (Cancelled)

29. (Currently Amended) A stereoscopic image display apparatus for allowing an observer to observe a stereoscopic image by guiding image light onto a predetermined observation surface plane, comprising:

an image display element for displaying a synthesized parallax image by synthesizing stripe images for a left eye and stripe images for a right eye by alternately arranging the stripe images for a left eye and the stripe images for a right eye in a vertical direction, the stripe images for a left eye being a plurality of horizontally elongated images obtained by dividing a parallax image for a left eye and the stripe images for a right eye being a plurality of horizontally elongated images obtained by dividing a parallax image for a right eye;

a mask member including a plurality of openings and a plurality of shield regions;

a second optical system for converging light incoming from said image display element onto said mask member; and

a first optical system for converging light incoming from said mask member onto the predetermined observation surface plane,

wherein said second optical system includes a first lens array in which a plurality of first lenticular lenses are periodically arranged in a vertical direction and a second lens array in which a plurality of second lenticular lenses are periodically arranged in a horizontal direction, and

wherein optical characteristics of the first lens array in a vertical direction and optical characteristics of the second lens array in a horizontal direction are different from each other.

30. (Previously Presented) A stereoscopic image display apparatus according to claim 29, wherein said first optical system includes a third lens array in which a plurality of third lenticular lenses are periodically arranged in a horizontal direction.

31. (Previously Presented) A stereoscopic image display apparatus according to claim 30, wherein each straight line connecting a pixel on a horizontal line of the image display element with a position of an observer's left eye or right eye passes through a vertex of a first lenticular lens, a center of an opening or a shield portion of the mask member, and a vertex of a third lenticular lens.

32. (New) A stereoscopic image display apparatus for providing a stereoscopic image to an observer by guiding parallax image light for a left eye to a position which is in a vicinity of a left eye of the observer on a predetermined observation plane and guiding

parallax image light for a right eye to a position which is in a vicinity of a right eye of the observer on the predetermined observation plane, comprising:

an image display element in which right eye pixel lines in each of which pixels are arranged in a horizontal direction and left eye pixel lines in each of which pixels are arranged in a horizontal direction are alternately arranged in a vertical direction;

a lateral lenticular lens for receiving light from said image display element, wherein said lateral lenticular lens comprises a plurality of lateral cylindrical lenses arranged in a vertical direction, the lateral cylindrical lenses having a refracting power in a vertical direction and substantially not having a refracting power in a horizontal direction;

a second longitudinal lenticular lens for receiving light from said lateral lenticular lens, wherein said second longitudinal lenticular lens comprises a plurality of second longitudinal cylindrical lenses arranged in a horizontal direction, the second longitudinal cylindrical lenses having refracting power in a horizontal direction and substantially not having refracting power in a vertical direction;

a mask member for receiving light from said second longitudinal lenticular lens, wherein said mask member has a plurality of openings and a plurality of shield portions arranged checkerwise; and

a first longitudinal lenticular lens for receiving light from said mask member, wherein said first longitudinal lenticular lens comprises a plurality of first longitudinal cylindrical lenses arranged in a horizontal direction, the first longitudinal cylindrical lenses having refracting power in a horizontal direction and substantially not having refracting power in a vertical direction,

wherein light from said first longitudinal lenticular lens is guided to the positions which are in the vicinity of the left eye and the vicinity of the right eye of the observer on the predetermined observation plane.

33. (New) A stereoscopic image display apparatus for providing a stereoscopic image to an observer by guiding parallax image light for a left eye to a position which is in a vicinity of a left eye of the observer on a predetermined observation plane and guiding parallax image light for a right eye to a position which is in a vicinity of a right eye of the observer on the predetermined observation plane, comprising:

an image display element in which right eye pixel lines in each of which pixels are arranged in a horizontal direction and left eye pixel lines in each of which pixels are arranged in a horizontal direction are alternately arranged in a vertical direction;

a micro lens array for receiving light from said image display element, wherein said micro lens array comprises toroidal lenses whose refracting power in a vertical direction and a refracting power in a horizontal direction are different;

a mask member for receiving a light from said micro lens array, wherein said mask member has a plurality of openings and a plurality of shield portions arranged checkerwise; and

a longitudinal lenticular lens for receiving light from said mask member, wherein said longitudinal lenticular lens comprises a plurality of longitudinal cylindrical lenses arranged in a horizontal direction, the longitudinal cylindrical lenses having refracting power in a horizontal direction and substantially not having refracting power in a vertical direction,

wherein light from said longitudinal lenticular lens is guided to the positions which are in the vicinity of the left eye and the vicinity of the right eye of the observer on the predetermined observation plane.

34. (New) A stereoscopic image display apparatus for providing a stereoscopic image to an observer by guiding parallax image light for a left eye to a position which is in a vicinity of a left eye of the observer on a predetermined observation plane and guiding parallax image light for a right eye to a position which is in a vicinity of a right eye of the observer on a predetermined observation plane, comprising:

an image display element in which right eye pixel lines in each of which pixels are arranged in a horizontal direction and left eye pixel lines in each of which pixels are arranged in a horizontal direction are alternately arranged in a vertical direction;

a lateral lenticular lens for receiving light from said image display element, wherein said lateral lenticular lens comprises a plurality of lateral cylindrical lenses arranged in a vertical direction, the lateral cylindrical lenses having refracting power in a vertical direction and substantially not having refracting power in a horizontal direction;

a second longitudinal lenticular lens for receiving light from said lateral lenticular lens, wherein said second longitudinal lenticular lens comprises a plurality of second longitudinal cylindrical lenses arranged in a horizontal direction, the second longitudinal cylindrical lenses having refracting power in a horizontal direction and substantially not having refracting power in a vertical direction;

a mask member for receiving light from said second longitudinal lenticular lens,

wherein said mask member has a plurality of substantially rectangular openings and shield regions having a plurality of rectangular shields, wherein the rectangular openings are arranged by shifting positions of each of said plurality of rectangular openings with a common distance in a common direction and the shield regions are formed by shifting positions of each of said plurality of rectangular shields with a common distance in the common direction; and

a first longitudinal lenticular lens for receiving light from said mask member, wherein said first longitudinal lenticular lens comprises a plurality of first longitudinal cylindrical lenses arranged in a horizontal direction, the first longitudinal cylindrical lenses having refracting power in a horizontal direction and substantially not having refracting power in a vertical direction,

wherein light from said first longitudinal lenticular lens is guided to the positions which are in the vicinity of the left eye and the vicinity of the right eye of the observer on the predetermined observation plane.

35. (New) A stereoscopic image display apparatus according to Claim 34, wherein the plurality of substantially rectangular openings are positioned to contact at opposing corners of each of rectangular openings with each other.

36. (New) A stereoscopic image display apparatus for providing a stereoscopic image to an observer by guiding parallax image light for a left eye to a position which is a vicinity of a left eye of the observer on a predetermined observation plane and guiding parallax image light for a right eye to a position which is in a vicinity of a right eye of the observer on

the predetermined observation plane, comprising:

an image display element in which right eye pixel lines in each of which pixels are arranged in a horizontal direction and left eye pixel lines in each of which pixels are arranged in a horizontal direction are alternately arranged in a vertical direction;

a micro lens array for receiving light from said image display element, wherein said micro lens array comprises toroidal lenses whose refracting power in a vertical direction and refracting power in a horizontal direction are different;

a mask member for receiving light from said micro lens array, wherein said mask member has a plurality of substantially rectangular openings and shield regions having a plurality of rectangular shields, wherein the rectangular openings are arranged by shifting positions of each of said plurality of rectangular openings with a common distance and in a common direction and the shield regions are formed by shifting positions of each of said plurality of rectangular shields with a common distance and in the common direction; and

a longitudinal lenticular lens for receiving light from said mask member, wherein said longitudinal lenticular lens comprises a plurality of longitudinal cylindrical lenses arranged in a horizontal direction, the longitudinal cylindrical lenses having refracting power in a horizontal direction and substantially not having refracting power in a vertical direction,

wherein light from said longitudinal lenticular lens is guided to the positions which are in the vicinity of the left eye and the vicinity of the right eye of the observer on the predetermined observation plane.